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Since the 1987 Single European Act, the European Union has deepened its integration process. In the case of the determination of the common external tariff, deeper integration implies that the tariff reflected union-wide preferences. If integration is still shallow, though, the observed tariff will reflect the preferences of a pivotal national government. How governments voted, however, was not public information. This paper uses a unique dataset to test the deep vs. shallow integration hypothesis in an effort to shed light on how decisions are made in the EU. Results support the deep integration hypothesis.

Keywords: Collective decisions; deeper integration; tariffs; European Union; decisive voter
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1. Introduction

Since the 1987 Single European Act (SEA), the European Union (EU) has been rapidly moving towards closer political and economic integration. The SEA extended the power of the EU in areas such as social, environmental, and research and technology policy. Subsequent treaties have only deepened the integration process.

These events suggest that the EU is increasingly resembling a single politically and economically unified country, rather than a collection of national governments participating in a customs union. Such development has important implications for how collective decisions are made on common policies such as trade. If the integration process is shallow (Cadot et al., 1999), trade policy will reflect bargaining between the member governments. Each government's policy preference, in turn, is potentially influenced by domestic special interest groups. On the other hand, if the integration process is deep, the customs union's trade policy is determined by a pan-union institution, which in turn can be influenced by union-wide, rather than domestic lobbies.

The question that arises then is, is policy-making indeed at the EU-level? The evidence suggests that it is. From its inception, authority on trade policy has been relegated to EU institutions, with a common external tariff adopted in 1968. Until 1987, national governments abided by a general principle known as the Luxembourg Compromise. Under this agreement, countries could veto decisions otherwise taken according to qualified majority[1] in the Council of Ministers[2] if they found them to be of vital national interest (Hine, 1985). The 1987 SEA not

[1] The Treaty of Rome (1957) provided for decisions to be made via qualified-majority, meaning that decisions required about 71 percent of the votes cast by each country in order to be passed. The Luxembourg Compromise did not change that rule, but merely introduced veto power. (Meunier, 2000).

[2] The Council of Ministers, which is the main decision-making body in the EU, is made up of ministers from each member state, with different ministers participating in the Council according to the subject under discussion—for instance, agricultural ministers discuss farm prices in the Agriculture Council, and economic and finance ministers discuss monetary affairs in the ECOFIN Council. Furthermore, each government acts as president of the Council for six months in rotation, thus allowing each country a turn in pursuing its own agenda (European Communities, 1999).

only extended the use of qualified-majority, but also resulted in the suspension of the Luxembourg Compromise (Meunier, 2000). This event caused a change in lobbying strategy. Before 1987, firms would lobby their own national governments, which would then bargain in the Council of Ministers to determine the common external tariff, using the veto to block any proposals that might hurt the domestic interests. After the SEA interest groups began to direct their resources towards lobbying at the EU-level (Mazey et al., 1993). Indeed, the number of interest groups in Brussels has significantly increased since 1987. In 1986, there were some 650 groups that had been set up since the EU was first established in 1958 (Mazey and Richardson, 2001); by 2000, that number had risen to nearly 3000 (Lehmann, 2003).

This paper, then, exploits a unique dataset of 80 manufacturing industries from 1987 to 2005 to examine whether the collective determination of the common European external tariff reflects deep or shallow integration. At the same time, light is also shed on the black box of European collective decision-making, since voting on the common external tariff took place behind closed doors (Schknecht, 1992). This implies that an indirect method is needed to infer how the national governments' or EU-wide policy preferences have been translated into an equilibrium collective decision.

If integration is shallow, the collective decision-making process can be modeled as a two-stage process, as in Tavares (2006), who examined how tariffs were set before the 1987 SEA.[3] In the first stage, interest groups lobby their national governments for protection of the industries they represent. Each government then selects a preferred tariff rate for that industry to maximize political support. In the second stage, then, countries vote in the Council of Ministers to

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And since the EC deals simultaneously in so many areas of policy, it is possible for negotiations to cover a wide variety of topics and thus be subject to logrolling.

[3] That paper found that the common external tariff during that period reflected the preferences of the least protectionist country, suggesting unanimity.

determine the level of the common external tariff. The duty adopted will reflect the preferences of the pivotal government.

The identity of the decisive member state, for its part, depends on how decisions are made. Three possibilities are unanimity, qualified majority, and simple majority. Since tariffs were declining over time during this period as a result of GATT[4] trade rounds, proposals before the Council would have been to adopt a common external tariff that was lower than the status quo. This implies that the decisive government under unanimity will be the most protectionist member, since that is the one that needs to be convinced to accept lower tariffs. In the case of qualified majority, about 5/7 of the votes are required to pass a proposal. This implies that, if there are 7 member states, out of the 5 needed to pass the proposal, the government that is most likely to object is the one preferring the highest tariff. In other words, the decisive government in that case will be the one whose preferences are at the 71st percentile of the distribution. Finally, under majority rule, the pivotal government is the one whose preferences lie at the median.[5]

Now, as Meunier (2000) pointed out, there is great uncertainty as to how decisions are actually made in the EU, though in general countries seek to reach a consensus. A way to achieve that is through logrolling, or vote trading. In the above discussion, it was assumed that member states had the same intensity of preferences. This is not a realistic assumption, as it is unlikely that, for instance, Germany would have the same preference for protecting its automobile industry as it has for protecting the footwear industry. Logrolling, then, allows such strong preferences to be given a greater weight. In other words, with logrolling, countries may trade votes on issues that are of less political importance domestically in exchange for votes favoring some proposal that is of greater political importance. This lets a country with a strong

[4] General Agreement on Tariffs and Trade, which has been superseded by the WTO (World Trade Organization).
[5] Note that the position of the pivotal government depends not on the position of the status quo, but rather on the direction of the proposed change in tariff relative to the status quo.

desire to protect some key domestic industry to go along with a higher tariff on a good that is of much less importance so that it can get the high tariff it really wants and still be better off.[6]

Because logrolling allows the intensity of preferences to be taken into account, the observed duty will reflect the preferences of a different decisive country than if it had not taken place. In particular, if proposals are to lower the tariff, the observed duty will reflect the preferences of a country that is more protectionist than in the case of simple or qualified majority, since the tariff rate will be higher than otherwise. This means that logrolling is regarded as another decision rule.

In the case of deep integration, however, firms concentrate their efforts on lobbying at the EU, rather than at the national level. This situation would be analogous to a single country setting its trade policy. For instance, in the case of the U.S., firms must lobby Washington for protection, rather than their state capitals. This implies that the appropriate specification would be similar to the one used to explain U.S. tariffs. In particular, each national tariff preference would now have to be aggregated in some fashion, so that there would no longer be a single pivotal government.

To answer the question of whether the EU's common external tariff reflects union-wide preferences or those of a decisive government, the different decision rules reflecting the shallow integration case are tested against the deep integration hypothesis. As an identification mechanism, the member enlargements that occurred in 1995 and 2004 are used. Because the composition of members changed as new countries joined, there was a potential for the political

[6] Of course, countries may trade votes on different issues. For instance, Germany may agree to support Portugal in securing more agricultural subsidies in exchange for support in increasing protection of the automobile industry. Because this paper uses a partial equilibrium framework, it focuses only on vote trading for protection of different industries. Allowing countries to trade votes on other issues, however, would not alter the conclusions.

equilibrium to change, possibly in favor of a new member. This then provides for an additional source of variation in the data.

Results suggest that the EU is indeed behaving like a single country when setting the common external tariff. These results are robust to various specification tests and to using the number of votes a country has in the Council of Ministers as weights.[7]

This paper is divided as follows: section 2 presents the empirical strategy for determining which political-economy model best explains tariff rates. Section 3 describes the data, as well as the predictions. Section 4 provides the empirical results, while section 5 subjects these results to a variety of sensitivity tests. The last section concludes.

2. Empirical Strategy

2.1 Decisive National Government

2.1.1 Stage one: Interest groups lobby national governments

In stage one, standard political economy considerations establish the policy preferences of the national governments (Hillman, 1982; Hillman and Ursprung, 1988; Grossman and Helpman, 1994).[8] Since no assumptions are required about the means and type of lobbying that occurs in the EC, nor that groups that lobby are necessarily perfectly organized and seek to influence the entire structure of tariff rates, a general specification is used to motivate the empirical model. More specifically, tariff-setting governments in each country are regarded as choosing preferred industry tariff rates that result in a politically-optimal deviation from free trade. Letting p_{it} be the relative price of industry $i = 1,\ldots,n$ at time t; p_{it}^{*} the world price of that

[7] The unweighted specification tests the hypothesis that decisions are being made by the European Commission rather than the Council. This is included because it is the Commission that negotiates treaties on behalf of the EU.
[8] See Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000) for empirical applications of the Grossman-Helpman model.

industry's good (so that $p_{it} - p_{it}^{*} = t_{it}$, the tariff rate on good *i* at time *t*), and $\pi_{it}(\cdot)$ indicating the profit function for the industry, a national government's political support function is

$$PS_{it} = f\left(\pi_{it}(p_{it}) - \pi_{it}\left(p_{it}^{*}\right), p_{it} - p_{it}^{*}\right) \tag{1}$$

where the first argument indicates the gain in industry profits or rents, and the second term represents the loss in consumer welfare from the tariff. The determination of the preferred common external tariff for an industry therefore involves the interests of the industry through profits or rents; of domestic consumers of the commodity who seek to maximize their utility; and of the national government, which trades off industry and consumer interests to maximize political support.

Empirically, to identify where countries rank in their preferences, one needs first to define the political support function. Because the focus of this paper is not on explaining the observed structure of protection across industries, but rather on shedding light on how collective decisions on the European common external tariff are made, the structure of the political support function comes not from a formal model, but rather from previous empirical studies (see Rodrik, 1995, for instance). In particular, the literature predicts that protection is higher:

• The larger the industry: the larger the industry seeking protection, measured as the share of employment in the industry, the greater is the incentive to be involved in the tariff-setting process. Furthermore, a large share of employment means the industry has more labor votes, which again increase protection. On the other hand, more employees makes it harder to organize as a result of the free rider problem, which in turn may decrease protection (Trefler, 1993).

• The smaller the number of firms: a smaller number of firms alleviates the free rider problem in coordinating a lobby, thus increasing the level of protection. Many studies, however, find a positive, rather than a negative, effect. Hillman (1991) and Hillman et al. (2001), for

instance, view lobbying as a case of private provision of a public good, since when successful, there is a public good-type benefit—increased protection—to all firms in the industry. A larger contribution by one firm does not necessarily decrease the contribution of other firms. As a result, increasing the number of firms in an industry can either increase or decrease the overall lobbying effort. [9]

• The lower the wage: disadvantaged industries often receive more protection. An industry is disadvantaged if it is a low-skill, and hence low-wage industry (see Trefler, 1993).

• The higher its labor intensity: the more labor intensive an industry, the more labor votes it has. This is measured by the labor cost share in production.

• The lower the level of intra-industry trade: industries seeking protection will find their task harder if they must counter not only consumer dissatisfaction, but also producers who purchase their goods as intermediates (see Marvel and Ray, 1987).

• The higher the import penetration: the higher the import penetration, the more will the affected industry lobby for protection, so as to decrease competition and maintain its market share (Trefler 1993). The theoretical literature, however, predicts an ambiguous relationship. In particular, the Grossman-Helpman (1994) model predicts that if industries are perfectly organized, protection should be higher in industries with low import penetration, and if they are not organized, the relationship between protection and import penetration should be positive. Models predicting a negative relationship include Mayer (1984), Hillman (1982), and Findlay and Wellisz (1982). Another problem with this variable is its potential endogeneity, since a higher tariff can lower import penetration. This will be dealt with in section 5.

[9] Pecorino (1998) analyzes this issue in a repeated tariff lobbying game where cooperation may be maintained through the use of trigger strategies, so that the difficulty of maintaining cooperation is measured by the critical value of the discount parameter. He finds that the effect of an increase in the number of firms on the ability of maintaining cooperation is indeterminate.

• The greater the rise in import penetration: declining sectors (those with large increases in import penetration) tend to receive more protection so as to reduce adjustment costs (Olarreaga et al., 1999).

• The smaller the share of exports in production: export-oriented industries do not require protection either because they face no import competition or because, with intra-industry trade, protection will provoke unwanted foreign retaliation (Trefler, 1993).

Finally, a dummy is included to control for the Uruguay trade round, which occurred more or less at the same time as the third enlargement.[10] This is predicted to have a negative relationship with tariffs, since each trade round resulted in multilateral tariff reductions. The trade round dummy is used rather than year fixed effects because it generates a clear prediction.[11]

To estimate each government's preferred industry tariff rate, each country's tariff rate from 1958 is used, which is before a common tariff was established. This allows the relationship between each country's tariff and the various components of its political support function to be determined. The equation estimated is:

$$t_{ic} = \beta_1 + \beta_2 C_{ic} + \nu_i + \varepsilon_{ic} \qquad (2)$$

where t_{ic} is the 1958 tariff rate for industry *i* and country *c*; C_{ic} is the vector of characteristics for industry *i* and country *c*;[12] ν_i is an industry-specific fixed effect, which is included to account for any unobserved factors that are common to all countries but vary by industry; and ε_{ic} is the error term. Results are shown in Table 1.

[10] The Uruguay Round began following the accession of Spain and Portugal in 1986, and concluded in 1993.
[11] To ensure this choice does not change the results, models including year fixed effects rather than the Uruguay Round dummy were also tested.
[12] Comparable industry data are not available for 1958. As a result, 1963 trade data were used together with 1963 industry data for Belgium, Germany, France, Italy, and the Netherlands, and 1976 data for the UK and Ireland. Using solely the available 1963 data does not alter the conclusions.

The coefficients from the estimation of equation (2) are then used to predict each country's preferred tariff over time, based on industry data from 1987 to 2005. Here it is assumed that the *function* determining each member government's preferred tariff does not change. It is possible, and highly likely, that this function may in fact change over time as new governments with different ideologies assume power in each country. Although it would be possible to control for whether a country's right wing party or left wing party is in office, it is not clear that it would play a major role in the determination of preferred tariff rates. For instance, in the U.S., Republicans favored high tariffs until the Great Depression and opposed them subsequently; the converse holds for Democrats. Still, the predicted preferred tariff rates are only used to rank order the countries in preferred tariff rates, not for estimation purposes. To check for robustness of the results, however, other methods for determining the decisive country are used. More details are given in section 4.

2.1.2 Stage two: Voting in the Council of Ministers

In the second stage, each minister of a member country arrives at the relevant Council meeting with his or her national government's preferred tariff rate, as determined in the first stage. An industry in one country cannot at this point seek to influence a government in another country. That is, an industry in France can only affect France's preferred tariff rate, not the preferred rate of Germany or Belgium. France's representative may, however, exchange votes for a preferred trade policy with Germany or Belgium's representative, so that voting may be affected by logrolling. Deliberations ensue and a vote is conducted to determine the common external tariff for the industry. The resulting tariff rate will be the duty preferred by the decisive national government.

Which national government is decisive in turn depends on how decisions are made. If the decision rule is unanimity, the observed tariff rate will reflect the preference of the national government with the most extreme preference. In other words, if the proposal is to lower the tariff, the national government favoring the highest tariff will be decisive, since this government needs to be convinced to lower the tariff.

Under a qualified-majority rule, 5/7 of the votes in the Council are required to approve a proposal. This means that the decisive national government will be the one whose preferred tariff rate lies at the 71st percentile, assuming the proposal is to lower tariffs. This is because if there are 7 member states, for instance, the country that is most likely to object to a change in the tariff rate is the one with the most extreme position among the 5 that are needed to pass the proposal. Finally, if decisions are made using simple majority, the observed tariff will reflect the preferences of the median country, regardless of whether the proposal is to increase or decrease the tariff rate.

However, given the opportunities that countries have at this stage to bargain and exchange votes for preferred tariff policies, tariff determination can also reflect logrolling. With decisions in the Council not directly observed, an indirect method is needed to determine whether logrolling took place, and therefore whether intensity of preferences was taken into account in collective decision-making.

A logrolling situation exists if two issues are adopted as a package even though they would not pass separately. This occurs when there is an unequal intensity of preferences. If one member state feels very strongly about protecting some key domestic industry but not about protecting the key domestic industry of another member state, the countries will have an incentive to trade votes with one another. For example, if Portugal has a strong preference for

protecting its footwear industry, but is not concerned about the automobile industry, while Germany really wants to protect its automobile industry, but has no strong preference for the footwear industry, they have an incentive to trade votes. Portugal will agree to vote for the increased tariff in the sector Germany cares about, in exchange for Germany's support in protecting the sector that Portugal cares about.[13] The special interests in Germany are better off with the high tariffs on each sector than with low tariffs on both products. The special interests in the logrolling partner Portugal are similarly better off with the combined high tariffs.

The outcome under logrolling, then, will be different than if logrolling had not taken place. More specifically, once the different intensities of preferences are taken into account, the observed common external tariff will be different, and thus reflect the preferences of a different pivotal government than if logrolling had not taken place. If the decision rule is simple majority,[14] the outcome under logrolling will reflect the preferences of a more protectionist country than the median, such as the one at the 60th percentile of the distribution. This is because the observed tariff rate will be higher than if there were no vote trading, meaning either that a decrease in tariff was blocked or that the tariff decreased by less than it would have otherwise. The same is true under qualified majority. With logrolling, the decisive national government will now be the one whose tariff preferences lie at a higher percentile than the 71st, such as the 86th percentile.[15]

The estimated equation, then, is given by

$$t_{it} = \beta_1 + \beta_2 C_{it}^{d} + \beta_3 U_t + \nu_i + \varepsilon_{it} \qquad (3)$$

[13] Note that given how decisions are made in the EU, France could also vote for a higher tariff in the sector Germany cares about in exchange for a vote for increased agricultural subsidies, for instance.
[14] When voting for the common external tariff, simple majority is not allowed. It is included here, however, as a reference and as a check on the results.
[15] The 86th percentile is used because it lies between the 71st and the 100th percentile that is implied by unanimity. Given that the number of member states included in the analysis varies from 5 to 11, the choice of the 86th percentile also allows me to capture the national government whose preference lies between the 71st and the 100th percentiles (the same is true for the 60th percentile).

where t_{it} is the common external tariff for industry *i* at time *t;* C_{it}^{d} is the vector of the decisive country *d*'s characteristics for industry *i* and time *t*; U_t is a dummy indicating the conclusion of the Uruguay Round (equal to 1 starting in 1993); ν_i is the industry-specific fixed effect, which is included to account for any time-invariant unobserved factors; and ε_{it} is the error term. In other words, the observed common external tariff will reflect the political-economy characteristics of the decisive national government. One equation is estimated for each decision rule. As in Romer and Rosenthal (1982), the criterion for selecting which model best describes tariffs is the R-squared. A specification where the decisive country is the one preferring the lowest tariff is also included to ensure the credibility of the results, as it would suggest that proposals were to increase the tariff, which is unlikely given GATT commitments. Finally, two specifications of (3) are estimated to take into account the possibility that national government's preferences may be weighted equally or differently according to the number of votes a country has in the Council (Table 2).[16]

2.2 Pan-European Lobbying

The 1987 SEA, and the subsequent adoption of the Single Market in 1993 suggest that the EU may have moved towards deeper integration, where the customs union trade policy is determined by a pan-European agency, which in turn is subject to influence by pan-European lobbies (Cadot et al. 1999). This suggests a model that considers the EU as a single national government, rather than a confederation of countries. In other words, firms are now lobbying directly to affect the common external tariff, rather than the preferences of their national

[16] Votes in the Council are weighted. The unweighted alternative is included, however, to account for the fact that it is the European Commission that drafts proposals and negotiates treaties. It also serves as a check to see whether decisions are made at the Council or at the Commission-level.

governments. This is analogous to a single country, like the U.S., setting its own trade policy. Firms in the U.S. must lobby legislators in Washington, rather than in their state capitals. In the case of the EU, firms are now lobbying in Brussels, rather than their national capitals. And rather than each member states selecting the preferred tariff rate that will maximize political support, it is the European Commission that will choose the tariff rate that results in an politically-optimal deviation from free trade. The solution to the maximization problem, then, is the EU's observed common external tariff. And since each country is now taken to be analogous to a state in the U.S., their preference-determining industry characteristics are aggregated across the EU. In particular, the industry characteristics are summed across countries. In other words, the number of firms in the textile industry in Portugal, for instance, will be added to the number of firms in France, Italy, Greece, and so forth, so that the estimated equation is

$$t_{it} = \beta_1 + \beta_2 C_{it}^{EU} + \beta_3 U_t + \nu_i + \varepsilon_{it} \qquad (4)$$

where C_{it}^{EU} is the vector of EU characteristics for industry *i* at time *t*. In the weighted specification, characteristics are aggregated using the votes in the Council of Ministers as weights.

3. Data

3.1 Tariffs

Tariffs for 1958 were taken from *Tariffs and Trade in Western Europe*, and needed to be converted from the Brussels Tariff Nomenclature (BTN) into the 3-digit industry classification. The sample includes data for 80 industries and seven member countries.[17]

[17] The countries are Belgium, Denmark, France, Germany, Italy, Netherlands, and the UK.

Tariff rates for 1987-05 were obtained from various issues of the *Official Journal of the European Communities*, which publishes the common tariff schedule annually. In general, these duties enter into force on January 1 of the following year. The data were collected for the publication year, rather than the years when the tariffs entered into force.[18]

Import duties are expressed in three ways: as *ad valorem* tariffs equal to a percentage of the product's value; as specific tariffs per unit weight, volume, or number of pieces; or as a combination of the two. In all cases, tariffs are based on the CIF value (cost, insurance, freight). Duties are expressed as conventional duties,[19] and only the *ad valorem* duties are used. In some instances, the duties were expressed as a combination of *ad valorem* and specific tariffs. As a result, the 10 affected industries were dropped from the sample.[20] Data were collected for every other year, beginning with 1987. Details on assembly are provided in the Appendix.

3.2 Industry and Trade

Data for the period were taken from Eurostat's Structural Business Statistics, which was taken from the Eurostat website. Again, since data were not available at the 4-digit level for the period before 1995 and because of the high frequency of missing data, it was decided to use the 3-digit level of NACE Rev. 1 for the purposes of this paper.

Data on exports and imports come from Eurostat's Intra- and Extra-EU trade (Combined Nomenclature), Supplement 2, as well as the Comext database available from Eurostat's website.

[18] This is because the publication year is the one that would reflect lobbying influence.
[19] Conventional duties are duties that are applicable to imported goods originating in countries which are contracting parties to the GATT, or with which the EC has concluded agreements containing the most-favored nation tariff.
[20] Including those industries by using only the ad valorem part of the tariff rate does not change the results.

4. Results

Results are shown in Table 3 for the unweighted specification, and Table 4 for the weighted specification. All regressions include a full set of industry-specific fixed effects. Standard errors are both heteroskedasticity and autocorrelation-consistent.

Results support the deep integration hypothesis, since in all cases, the sum specification has a better fit than the other voting models, as indicated by the within R-squared. This suggests that the model that best describes how the common external tariff is set is one that aggregates each national government's preference-determining industry characteristics. Furthermore, most of the industry characteristics used to explain the common tariff under this specification are significant and exhibit the expected sign. In particular, the number of firms, the labor cost share, the intra-industry index, the export share, and the Uruguay Round dummy are all significant and have the predicted relationships to the common external tariff.

These results then suggest that the U.S.-type specification, where industry characteristics are aggregated, does fit better than the decisive country specification, meaning a model accounting for deeper integration, rather than the shallow integration model, is the one that best explains how the common external tariff has been determined in the EU since the veto power was suspended in 1987.

5. Sensitivity Analysis

Comparing models on the basis of their R-squared is not the only way of deciding which one best explains the variable of interest. Because the estimated equations are OLS regressions, and each estimated equation contains the same number of regressors and the dependent variable

is the same, the R-squared is an appropriate measure for comparing the different models.[21] To further test the robustness of the results, though, J-tests of the deep integration versus the shallow integration specifications are performed. In particular, the deep integration hypothesis is tested against both unanimity outcomes, as well as the median, and the qualified-majority rule and the two logrolling possibilities arising when proposals are to lower tariffs. These were chosen because they were the best performing models.

The J-test, as proposed by Davidson and MacKinnon (1981), is a procedure for choosing between non-nested models. The J-test, then, can be used to see if the model that had the highest R-squared does in fact have a greater explanatory power than the alternatives, but it has the disadvantage that oftentimes it is impossible to make a selection between models. In particular, in a finite sample, the test of the H_0 versus H_1 can lead to four possibilities: reject both, neither, or either one of the two hypothesis (Greene 1997). Another disadvantage is that it is a weak test, and hence one cannot obtain a ranking of models, as one does with the R-squared.

The results, shown in Table 5, indicate that this is partially the case. The deep integration model reject all the possible decisive-country models in all cases; however, the decisive national government models also mostly reject the deep integration model. Still, additional support for the sum specification is provided by the fact that the t-statistic is always higher when deep integration is the alternative hypothesis than when it is the null.

Another potential source of concern is the fact that some of the variables used as indicators of political influence present a potential endogeneity problem. Specifically, import penetration is affected by tariff rates. The higher the tariffs, the less will domestic consumers buy of imported goods, resulting in a decrease in imports altogether. It would be desirable to consider the joint determination of import penetration levels with tariff protection and perform a

[21] Using the Akaike Information Criterion, or the Schwarz Criterion will lead to the same conclusion in this case.

simultaneous estimation of the two equations, as in Trefler (1993). Due to data restrictions, however, such an approach is not possible.[22] The first column in Tables 6 and 7, however, presents the results of running the same regressions as before, only this time without the import penetration and the change in import penetration. Presumably, if these two variables are endogenous, they would bias the results and potentially alter the conclusion drawn. What is found is that the results are unchanged in that the deep integration specification still performs best.

Another problem that has been pointed out repeatedly in the literature concerns the use of import shares as weights when aggregating tariffs to the industry level. As a result, this paper uses a simple rather than a weighted average, but to ensure that this choice did not affect the results, regressions were run using the import shares as weights. As indicated in the second column of Tables 6 and 7, the model in which national governments' industry characteristics are summed still has the highest R-squared, suggesting that the results are robust to the choice of a weighting scheme.

Another concern that might arise regards the way the tariff rates were constructed for each industry and year. Because in some instances there were many CN categories making up one 3-digit industry, and because of changing customs classification, it was decided to include only the CN categories that made up a significant share of trade in that industry. To test whether this choice influenced the results, the regressions were run where the dependent variable was constructed from all CN categories making up an industry. As column 3 in Tables 6 and 7 indicate, the results were robust to how the dependent variable was constructed.

[22] Trefler estimates a simultaneous equation Tobit model, with one equation having non-tariff barriers as the dependent variable and the other having import penetration. The explanatory variables used in the import penetration equation are measures of factor endowments, which are not available for the EU and for the period in question.

Now, since the industry data for the period before 1995 required a correction,[23] it is possible that these results might be subject to measurement error. To investigate this, the sample was restricted to 1995-2005, the period for which data on all firms is available. The results are shown in column 4 of Tables 6 and 7. Once again, the aggregated specifications had the best fit.

Another issue that could be of concern regards the use of a Uruguay Round dummy instead of time fixed-effects. To investigate whether this choice affected the results obtained, year fixed effects were included in place of the Uruguay Round dummy. As shown on column 5 in Tables 6 and 7, this choice had no impact on the results.

Finally, columns 6 and 7 of Tables 6 and 7 present the results of regressions using different functional forms. In column 6, none of the variables are in logs; whereas in column 7, only the dependent variable is not in logs. The conclusions drawn are insensitive to this change in functional form, with the sum specification being preferred.

These tests then confirm that the specification that best explains the common European external tariff following the 1987 SEA is tge one which reflects deeper integration.

5.1. Revisiting the Decisive Country

Still another possible concern that might be raised consists of how the decisive country is determined in the first place. In particular, an assumption was made that the function that determines tariff rates in 1958 is unchanged over time. To ensure that the results are not affected by this assumption, two additional methods are used to identify the decisive country.

In the first case, as in Romer and Rosenthal (1982), the industry characteristics included are those lying at the relevant percentile. For example, if the voting rule is qualified-majority, the

[23] As mentioned previously, industry data referred to firms employing 20 or more persons while the trade data were for all firms.

decisive country is the one whose industry characteristics lie at the 71st percentile. The percentile used can be ascending or descending, depending on the sign prediction. From section 2, it was predicted that the share of employment in the country, the labor intensity, the import penetration and the change in import penetration were all positively related to the tariff rates; whereas the number of firms and the export intensity were anticipated to exhibit a negative relationship. For those with the positive relation, the percentile is, for example, the 60th; but for those showing a negative relationship, the appropriate percentile is the 40th rather than the 60th. Results are shown in Tables 8 and 9 for the unweighted and weighted specification, respectively. They indicate that the deep integration hypothesis still has the best fit.

This methodology, however, has a drawback. If one were to count the number of times that a country's industry characteristics matched the appropriate percentile in the distribution, and do it for every industry characteristic, one will most likely find an inconsistent decisive country. For example, it is possible that according to this methodology, the decisive country according to the share of employment is Italy, while France was the decisive country in the number of firms and wage rate, Germany in labor intensity and import penetration, and Belgium in the change in import penetration and export intensity. This, then, results in an inconsistent result, in that there are four potential decisive countries. To circumvent this problem, simple bivariate OLS regressions are run to determine which of the industry characteristics were the most influential in affecting tariffs. The decisive country is then the one whose most influential characteristic lies at the relevant percentile. The results for both the unweighted and the vote-weighted cases are shown in Tables 10 and 11. Again, the deep integration hypothesis is favored. These results then provide further support for the finding that from 1987 to 2005, a model reflecting deep integration best explains how tariffs were determined in the European Union.

6. Conclusion

Since the 1987 Single European Act, the European Union has moved towards deeper political and economic integration. This paper used a unique dataset to empirically test the hypothesis that since 1987, the EU has behaved like a single unified country in collective decision-making regarding the union's common external tariff. In particular, it developed a framework for examining how the common external tariff is set in the European Union. Under the hypothesis of shallow integration, an individual country would be decisive in the tariff determination process (as in a decisive-voter model). The empirical specification in that case consisted of regressing the preference-determining characteristics of the decisive national government (for each decision rule) against the common external tariff level for 80 manufacturing industries over the 1987-2005 period.

Under deeper integration, however, national governments' tariff preferences would be aggregated in some fashion, so that the collective decision-making process would resemble tariff determination in a single national government, such as the U.S. Empirically, the preference-determining characteristics of the EU were regressed against the common external tariff, with the EU characteristics being calculated as the sum or average of all member governments' preference-determining characteristics.

Empirical results confirm evidence suggesting a drift to Brussels, as the EU-specification performed better than any of the decisive national government voting models. The data also implied that changes in the European common tariff during the 1987-2005 period were best explained by the number of firms, the labor cost share, the intra-industry trade index, the export share, and the Uruguay Round dummy. These results were robust to eliminating potentially endogenous variables; using import-weighted rather than a simple average of the tariff rates;

changing how the dependent variable was constructed; restricting the sample period; including time fixed-effects instead of a Uruguay Round dummy; changing the functional form; and using different methods for finding the decisive country. As demonstrated in Tavares (2006), this finding is reversed if one examines the period preceding the 1987 Single European Act. Because countries were allowed to veto during that period, it was found that the EC was behaving like a collection of countries, meaning that the common tariff reflected the preferences of a decisive national government. This paper then suggests that the suspension of the veto in 1987 has moved the EU from a confederation of countries to resembling a single country in setting the common tariff.

7. References

Cadot, Olivier, Jaime de Melo and Marcelo Olarreaga. (1999). "Regional Integration and Lobbying for Tariffs Against Non-Members." *International Economic Review,* vol. 40 no. 3 (August), pp. 635-57.

Davidson, Russell and James G. MacKinnon. (1981). "Several Tests for Model Specification in the Presence of Alternative Hypotheses." *Econometrica*, vol. 49, pp. 781-93.

European Communities (1999). *Serving the European Union: A Citizen's Guide to the Institutions of the European Union*. Luxembourg: Office for Official Publications of the European Communities.

Findlay, Ronald and Stanislaw Wellisz. (1982). "Endogenous Tariffs, the Political Economy of Trade Restrictions, and Welfare." In Jagdish Bhagwati (ed.) *Import Competition and Response.* Chicago: University of Chicago Press.

Greene, William H. (1997). *Econometric Analysis*. Upper Saddle River, NJ: Prentice Hall.

Grossman, Gene and Elhanan Helpman. (1994). "Protection for Sale." *American Economic Review,* vol. 84, pp. 833-50.

Hillman, Arye L. (1982). "Declining Industries and Political-Support Protectionist Motives." *American Economic Review,* vol. 72, pp. 1180-1187.

————. (1991). "Protection, Politics, and Market Structure," in Elhanan Helpman and Assaf Razin, eds. *International Trade and Trade Policy*. Cambridge, MA: MIT Press.

————, Ngo Van Long, and Antoine Soubeyran. (2001). "Protection, Lobbying and Market Structure." *Journal of International Economics*, vol. 54, pp. 383-409.

———— and Heinrich Ursprung. (1988). "Domestic Politics, Foreign Interests, and International Trade Policy." *American Economic Review,* vol. 78, no. 4 (September 1988), pp. 729-745.

Hine, R. C. (1985). *The Political Economy of European Trade: An Introduction to the Trade Policies of the EEC.* New York: St. Martin's Press, Inc.

Lee, Jong-Wha and Philip Swagel. (1997). "Trade Barriers and Trade Flows Across Countries and Industries." *Review of Economics and Statistics,* vol. 79 no. 3 (August), pp. 372-82.

Lehmann, Wilhelm. (2003). *Lobbying in the European Union: Current Rules and Practices.* Luxembourg, European Parliament.

Marvel, Howard P. and Edward J. Ray. (1983). "The Kennedy Round: Evidence on the Regulation of International Trade in the United States." *American Economic Review,* vol. 73, no. 1 (March), pp. 190-7.

Mayer, Wolfgang. (1984). "Endogenous Tariff Formation." *American Economic Review,* vol. 74, no. 5 (December), pp. 970-85.

Mazey, Sonia and Jeremy Richardson (2001) "Interest Groups and EU Policy-Making: Organizational Logic and Venue Shopping," in Jeremy Richardson (ed.) *European Union, Power and Policy-Making*. New York: Routledge .

Mazey, Sonia and Richardson, Jeremy, eds. (1993). *Lobbying in the European Communities.* Oxford: Oxford University Press.

Meunier, Sophie. (2000). "What Single Voice? European Institutions and EU-US Trade Negotiations." *International Organization,* vol. 54 no. 1 (Winter), pp. 103-35.

Olarreaga, Marcelo, Isidro Soloaga and L. Alan Winters. (1999). "What's behind Mercosur's Common External Tariff?" World Bank Policy Research Working Paper 2231 (November).

Pecorino, Paul. (1998). "Is there a Free-Rider Problem in Lobbying? Endogenous Tariffs, Trigger Strategies, and the Number of Firms." *American Economic Review,* vol. 88 no. 3 (June), pp. 652-60.

Rodrik, Dani. (1995). "Political Economy of Trade Policy." In Gene Grossman and Kenneth Rogoff, eds. *Handbook of International Economics*, vol. 3. Amsterdam: North Holland.

Romer, Thomas and Howard Rosenthal. (1982). "Median Voters or Budget Maximizers: Evidence from School Expenditure Referenda." *Economic Inquiry*, vol. 20 (October), pp. 556-77.

Schuknecht, Ludger. (1992). *Trade Protection in the European Community.* Chur: Hardwood Academic Publishers.

Tavares, Samia Costa. (2006). "The Common External Tariff in a Customs Union: Voting, Logrolling, and National Government Interests." Mimeo.

Trefler, Daniel. (1993). "Trade Liberalization and the Theory of Endogenous Protection: An Econometric Study of U.S. Import Policy." *Journal of Political Economy,* vol. 101, no. 1 (February), pp. 138-160.

8. Appendix—Dataset Construction

8.1. Tariffs

The tariff rates provided needed to be converted to the 3-digit level of NACE Rev. 1,[24] which is a 4-digit classification that was drawn up in 1990 that was designed to be a more detailed version of ISIC Rev. 3. A correspondence table between NACE Rev. 1 and CN was obtained from the EU's RAMON nomenclatures server.[25] Because data at the 4-digit level was only available starting in 1995, and even then, the coverage was sparse, it was decided to use the 3-digit level.

Some of the NACE Rev. 1 categories corresponded to only one CN, but in most cases, there were several CN that made up one 3-digit NACE Rev. 1 industry.[26] Rather than averaging all the corresponding tariff rates, which would have made it difficult to accurately reflect the size of changes in the level of protection, it was decided to calculate the share of trade in 1988 represented by each CN category within an industry. All products that accounted for at least 10 percent of the trade in an industry were used in representing the tariff for that industry. For some industries, no product met that threshold, or all the products meeting that threshold, taken together, did not account for at least 50 percent of the trade. In those cases, all the products with the highest trade percentage which, when added up, met the 50 percent threshold, were used. The tariff rate for the industry was taken then to be the simple average of all relevant duties in that industry.[27]

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[24] General Industrial Classification of Economic Activities within the European Communities.
[25] http://europa.eu.int/comm/eurostat/ramon/
[26] An additional problem is that the customs classification itself is not constant.
[27] The tariff rates could also be aggregated using the import share as weight. However, because the customs classification is not constant, it becomes difficult to assign the weight to a CN category that splits into multiple categories, especially since in some of these cases, the categories it split into are common with other CN categories. Furthermore, using import shares as weights when aggregating tariffs to the industry level can potentially cause a low weight to be attached to products that face high tariffs, since those goods are likely to have low imports for reasons stated above. Lee and Swagel (1995) construct average tariffs using import and production shares as

In 1997 and 1999, conventional duties for Chapters 1-24 were split into two periods, January 1-June 30 and July 1-December 31. For these cases, the tariffs were averaged to reflect the tariff for that particular year and good.

8.2. Industry and Trade

Because the industry data contained Even at the 3-digit level, the data contained missing observations. As a result, data were collected for every year, rather than every other year. In cases where the previous and following year's figures were available, they were used to linearly interpolate the values. This was not always possible, since there were instances where only the previous year's or the following year's was available (but not both). In those cases, the data from the closest year were used to fill in what was missing. A criterion was also established to determine whether an industry should be kept or dropped for lack of data. As long as there were at least six out of the total possible 13 countries available,[28] and sufficient years for interpolation to be used; and as long as there were both industry and trade data available, the industry was kept. In the end, out of 120 industries, 80 industries were included in the sample over seven years (every other year from 1987-99), for a total of 960 observations.

Another complication arose from the fact that data before 1995 refers to enterprises employing 20 or more persons for all countries except Spain, Portugal, and Ireland. Data on firms employing less than 20 persons are available starting in 1995, though not for all country-industry pairs. In order to adjust the data to include small firms, for each variable, the proportion represented by the small firms was calculated. For instance, in the case of production, the

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weights. Production shares, however, tend to overstate protection, much in the same way that import shares understate them. Nevertheless, an attempt was made to create an import-weighted tariff to test the robustness of the results.

[28] Data for Belgium and Portugal are not available at all for one of the explanatory variables included in the analysis.

production share of small firms in total production was calculated for the available years. These shares did not change much from one year to the next, so the average ratio represented by small firms in the years after 1995 was used to calculate the values for all firms in the preceding years.

Data on exports and imports come from Eurostat's Intra- and Extra-EU trade (Combined Nomenclature), Supplement 2. The data were aggregated from the 8-digit CN into the 3-digit NACE Rev. 1, as was the case with the tariff.

Another issue was that trade data for Luxembourg referred to both Belgium and Luxembourg. To separate Luxembourg's share, the share of population in Luxembourg was used to adjust the data.

Table 1. Determining Preferred Tariff Rates

Dependent variable: ln(1+ common external tariff) (simple average)	
Employment Share	-0.210***
	(0.062)
# Firms	-0.016
	(0.027)
Wage	-0.562***
	(0.101)
Labor Cost Share	-0.094
	(0.231)
Intra-industry Ratio	0.134**
	(0.064)
Import Penetration	-0.124
	(0.080)
Export Share	-0.152**
	(0.075)
Obs	449
Adj R-squared	0.6092
F-statistic	15.19
Log-likelihood	-342.98

Note: Panel regressions were run for 7 countries (Belgium, France, Germany, Ireland, Italy, the Netherlands, and the UK) and 80 industries. Industry and trade data are from 1963 and 1976, while the tariff is from 1958. Heteroskedasticity-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs. The estimated equations also include a full set of industry dummies, as well as a constant. The relationship between the 1958 country-specific tariffs and the industry characteristics were used to forecast each national government's preferred tariff rates over the 1987-2005.

Table 2. Distribution of Votes in Council of Ministers

Country	Votes 1973-2004	Country	Votes 2004-present
Austria, Sweden	4	Austria, Sweden	10
Belgium, Netherlands	5	Belgium, Czech Republic, Greece, Hungary, Portugal	12
Denmark, Ireland, Finland	3	Denmark, Ireland, Finland, Lithuania, Slovakia	7
France, Germany, Italy, UK	10	France, Germany, Italy, UK	29
Greece, Portugal	5	Cyprus, Estonia, Latvia, Luxembourg, Slovenia	4
Luxembourg	2	Spain, Poland	27
Spain, Portugal	8	Malta	3

Source: European Communities (1999), http://www.consillium.europa.eu/

Table 3. Unweighted Regressions Explaining Common External Tariff

	Unanimity 1	Median	Logrolling 1	QMV	Logrolling 2	Unanimity	Sum
Employment	-0.039	-0.011	0.040	0.024	0.031	0.012	-0.082
Share	(0.040)	(0.038)	(0.032)	(0.033)	(0.029)	(0.035)	(0.148)
# Firms	-0.045***	-0.011	-0.001	0.004	-0.043***	-0.026*	-0.201***
	(0.014)	(0.011)	(0.011)	(0.009)	(0.009)	(0.015)	(0.044)
Wage	0.147**	0.143**	0.175***	0.132**	0.182***	0.104**	0.097
	(0.066)	(0.073)	(0.066)	(0.056)	(0.048)	(0.046)	(0.129)
Labor Cost	0.443***	0.073	0.107*	0.146***	0.090	0.153**	0.902***
Share	(0.082)	(0.061)	(0.063)	(0.047)	(0.060)	(0.065)	(0.216)
Intra-industry	-0.093***	0.046*	-0.013	-0.011	-0.042**	0.006	-0.132*
Ratio	(0.030)	(0.026)	(0.024)	(0.021)	(0.020)	(0.023)	(0.074)
Import	-0.001	-0.014	-0.057**	0.049**	0.044	0.113***	-0.067
Penetration	(0.030)	(0.029)	(0.028)	(0.024)	(0.028)	(0.034)	(0.074)
Δ Import	-0.001**	-0.001	0.001	-0.000	0.001	-0.004	0.003
Penetration	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)
Export Share	-0.069**	-0.078**	-0.060**	-0.112***	-0.088***	-0.146***	-0.186**
	(0.032)	(0.032)	(0.028)	(0.027)	(0.025)	(0.027)	(0.078)
Uruguay	-0.321***	-0.357***	-0.360***	-0.349***	-0.309***	-0.358***	-0.076**
Round	(0.027)	(0.030)	(0.029)	(0.029)	(0.030)	(0.029)	(0.037)
Obs	800	800	800	800	800	800	800
R-squared (within)	0.3520	0.2849	0.3048	0.3119	0.3472	0.3242	0.4536
Adj R-squared	0.2709	0.1954	0.2178	0.2258	0.2655	0.2396	0.3852
F-statistic	31.8616	28.8099	32.4480	35.1953	37.6011	32.6121	52.8040

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Heteroskedasticity and autocorrelation-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs, except for the change in import penetration and the Uruguay Round dummy (equal to 1 starting in 1993). The estimated equations also include a full set of industry dummies, which are not included in the calculation of the R-squared and the F-statistic, as well as a constant. Each column consists of one regression, with the headings indicating the voting model. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71st percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60th and 86th percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Preferred tariff rates for each national government were forecasted over the 1987-2005 period using the results from a regression of 1958 country-specific tariffs against industry and trade characteristics (see Table 1).

Table 4. Weighted Regressions Explaining Common External Tariff

	Unanimity 1	Median	Logrolling 1	QMV	Logrolling 2	Unanimity	Sum
Employment	-0.039	0.051	0.105***	0.222***	0.067**	0.012	-0.024
Share	(0.040)	(0.042)	(0.037)	(0.035)	(0.033)	(0.035)	(0.155)
# Firms	-0.045***	-0.029**	-0.020	-0.037***	-0.069***	-0.026*	-0.126***
	(0.014)	(0.012)	(0.017)	(0.012)	(0.011)	(0.015)	(0.033)
Wage	0.147**	0.164**	0.302***	0.485***	0.215***	0.104**	0.086
	(0.066)	(0.081)	(0.080)	(0.064)	(0.061)	(0.046)	(0.134)
Labor Cost	0.443***	0.063	0.150***	0.079	0.215***	0.153**	0.975***
Share	(0.082)	(0.067)	(0.057)	(0.058)	(0.070)	(0.065)	(0.215)
Intra-industry	-0.093***	-0.021	-0.003	-0.044**	-0.038	0.006	-0.157**
Ratio	(0.030)	(0.027)	(0.029)	(0.020)	(0.024)	(0.023)	(0.073)
Import	-0.001	0.032	0.005	0.017	0.065**	0.113***	-0.035
Penetration	(0.030)	(0.036)	(0.033)	(0.032)	(0.029)	(0.034)	(0.075)
Δ Import	-0.001**	-0.001	0.000	0.001	-0.002	-0.004	0.004
Penetration	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)
Export Share	-0.069**	-0.102***	-0.040	0.003	-0.082**	-0.146***	-0.159*
	(0.032)	(0.037)	(0.033)	(0.025)	(0.034)	(0.027)	(0.086)
Uruguay	-0.321***	-0.361***	-0.347***	-0.261***	-0.279***	-0.358***	-0.121***
Round	(0.027)	(0.032)	(0.032)	(0.030)	(0.030)	(0.029)	(0.033)
Obs	800	800	800	800	800	800	800
R-squared (within)	0.3520	0.2817	0.2978	0.3654	0.3618	0.3242	0.4372
Adj R-squared	0.2709	0.1918	0.2099	0.2860	0.2819	0.2396	0.3667
F-statistic	31.8616	28.0581	34.0574	34.5673	41.0181	32.6121	45.8569

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Heteroskedasticity and autocorrelation-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs, except for the change in import penetration and the Uruguay Round dummy (equal to 1 starting in 1993). The estimated equations also include a full set of industry dummies, which are not included in the calculation of the R-squared and the F-statistic, as well as a constant. Each column consists of one regression, with the headings indicating the voting model. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71st percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60th and 86th percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Preferred tariff rates for each national government were forecasted over the 1987-2005 period using the results from a regression of 1958 country-specific tariffs against industry and trade characteristics (see Table 1). All regressions are weighted by the number of votes each country has in the Council of Ministers.

Table 5. J-Tests

		Unweighted		Weighted	
Null	Alternative	t-stat	Conclusion	t-stat	Conclusion
Unanimity 1	Sum	12.04***	Reject	11.11***	Reject
Sum	Unanimity 1	5.19***	Reject	5.37***	Reject
Median	Sum	12.24***	Reject	12.32***	Reject
Sum	Median	0.60	Cannot Reject	0.70	Cannot Reject
Logrolling 1	Sum	11.08***	Reject	10.53***	Reject
Sum	Logrolling 1	1.91*	Reject	0.54	Cannot Reject
QMV	Sum	12.15***	Reject	9.76***	Reject
Sum	QMV	3.14***	Reject	4.99***	Reject
Logrolling 2	Sum	11.39***	Reject	9.96***	Reject
Sum	Logrolling 2	4.12***	Reject	4.54***	Reject
Unanimity 2	Sum	12.27***	Reject	11.52***	Reject
Sum	Unanimity 2	3.31***	Reject	3.32***	Reject

Note: * denotes significance at the 10 percent level, ** at the 5 percent level and *** at the 1 percent level. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71^{st} percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60^{th} and 86^{th} percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Preferred tariff rates for each national government were forecasted over the 1987-2005 period using the results from a regression of 1958 country-specific tariffs against industry and trade characteristics (see Table 1). All regressions are weighted by the number of votes each country has in the Council of Ministers.

Table 6. Sensitivity Analysis—Unweighted Specification

Hypothesis	Decision Rule	Import Pen	Tariff weight	All Tariffs	95-05	Time FE's	Linear	Lin Log
Shallow Integration	Unanimity 1	0.3461	0.3480	0.4449	0.1695	0.5377	0.3946	0.4100
	Median	0.2844	0.2956	0.3543	0.0896	0.5189	0.3602	0.3630
	Logrolling 1	0.3003	0.2865	0.3745	0.0957	0.5134	0.3373	0.3578
	QMV	0.3078	0.3235	0.3703	0.0922	0.5436	0.3577	0.3757
	Logrolling 2	0.3444	0.3496	0.4266	0.1193	0.5490	0.3813	0.4009
	Unanimity 2	0.3101	0.3319	0.3739	0.1028	0.5388	0.3873	0.3839
Deep Integration	EU-Wide	0.4517	0.4488	0.5718	0.2940	0.5324	0.5419	0.5300
	Obs.	800	800	800	480	800	800	800

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Columns refer to different sensitivity tests, while each row corresponds to a voting model. Each cell refers to the within R-squared for a particular model and specification. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71^{st} percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60^{th} and 86^{th} percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Preferred tariff rates for each national government were forecasted over the 1987-2005 period using the results from a regression of 1958 country-specific tariffs against industry and trade characteristics (see Table 1). The sensitivity tests are as follows: *import pen.* refers to a specification without the import penetration and the change in import penetration, which are potentially endogenous; *tariff weight* refers to having the import-weighted common tariff, rather than the simple average, as the dependent variable; *all tariffs* denotes that the dependent variable is constructed by taking the simple average of all products making up one industry; *95-99* indicates that the sample was constrained to the 1995-99 period; *time FE's* indicates that time fixed-effects were included instead of a Uruguay Round dummy; *linear* refers to a specification in which neither dependent nor independent variables are in logs, while *lin-log* is a specification where only the independent variables are in logs.

Table 7. Sensitivity Analysis—Weighted Specification

Hypothesis	Decision Rule	Import Pen	Tariff weight	All Tariffs	95-05	Time FE's	Linear	Lin Log
Shallow Integration	Unanimity 1	0.3461	0.3480	0.4449	0.1695	0.5377	0.3946	0.4100
	Median	0.2807	0.2839	0.3503	0.0843	0.5256	0.3367	0.3516
	Logrolling 1	0.2976	0.2978	0.3709	0.1124	0.5118	0.3364	0.3824
	QMV	0.3625	0.3759	0.4449	0.1214	0.5293	0.3777	0.4082
	Logrolling 2	0.3569	0.3538	0.4426	0.1093	0.5524	0.4166	0.4119
	Unanimity 2	0.3101	0.3319	0.3739	0.1028	0.5388	0.3873	0.3839
Deep Integration	EU-Wide	0.4353	0.4301	0.5504	0.2632	0.5261	0.5317	0.5083
	Obs.	800	800	800	480	800	800	800

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Columns refer to different sensitivity tests, while each row corresponds to a voting model. Each cell refers to the within R-squared for a particular model and specification. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71^{st} percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60^{th} and 86^{th} percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Preferred tariff rates for each national government were forecasted over the 1987-2005 period using the results from a regression of 1958 country-specific tariffs against industry and trade characteristics (see Table 1). The sensitivity tests are as follows: *import pen.* refers to a specification without the import penetration and the change in import penetration, which are potentially endogenous; *tariff weight* refers to having the import-weighted common tariff, rather than the simple average, as the dependent variable; *all tariffs* denotes that the dependent variable is constructed by taking the simple average of all products making up one industry; *95-99* indicates that the sample was constrained to the 1995-99 period; *time FE's* indicates that time fixed-effects were included instead of a Uruguay Round dummy; *linear* refers to a specification in which neither dependent nor independent variables are in logs, while *lin-log* is a specification where only the independent variables are in logs. All regressions are weighted by the number of votes each country has in the Council of Ministers.

Table 8: Testing Voting Rules—Decisive Country from Industry Characteristics

	Unanimity 1	Median	Logrolling 1	QMV	Logrolling 2	Unanimity 2	Sum
Employment	-0.083**	-0.178**	-0.161***	-0.081	-0.164**	-0.174***	-0.082
Share	(0.041)	(0.069)	(0.061)	(0.066)	(0.068)	(0.054)	(0.148)
# Firms	-0.175***	-0.100**	-0.133***	-0.140***	-0.143***	-0.168***	-0.201***
	(0.032)	(0.043)	(0.032)	(0.027)	(0.026)	(0.036)	(0.044)
Wage	0.382***	0.324***	0.160**	0.126**	0.104**	0.101**	0.097
	(0.085)	(0.087)	(0.072)	(0.057)	(0.047)	(0.046)	(0.129)
Labor Cost	0.279***	0.634***	0.694***	0.631***	0.578***	0.414***	0.902***
Share	(0.074)	(0.162)	(0.173)	(0.153)	(0.110)	(0.088)	(0.216)
Intra-industry	-0.142	-0.132**	-0.131***	-0.127***	0.049	-0.045*	-0.132*
Ratio	(0.103)	(0.059)	(0.050)	(0.039)	(0.031)	(0.024)	(0.074)
Import	0.070*	-0.029	-0.089*	-0.133***	-0.213***	-0.121***	-0.067
Penetration	(0.038)	(0.053)	(0.052)	(0.043)	(0.041)	(0.031)	(0.074)
Δ Import	-0.001*	-0.000	0.005	-0.000	0.003**	0.000	0.003
Penetration	(0.001)	(0.005)	(0.005)	(0.003)	(0.001)	(0.001)	(0.003)
Export Share	-0.108***	-0.317***	-0.309***	-0.250***	-0.165***	-0.173***	-0.186**
	(0.031)	(0.057)	(0.053)	(0.046)	(0.033)	(0.036)	(0.078)
Uruguay	-0.185***	-0.215***	-0.196***	-0.178***	-0.226***	-0.256***	-0.076**
Round	(0.037)	(0.031)	(0.032)	(0.033)	(0.030)	(0.030)	(0.037)
Obs	800	800	800	800	800	800	800
R-squared (within)	0.4046	0.4091	0.4151	0.4096	0.4153	0.4110	0.4536
Adj R-squared	0.3301	0.3351	0.3419	0.3357	0.3422	0.3372	0.3852
F-statistic	39.3013	39.1967	40.3265	41.2193	40.5260	42.9090	52.8040

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Heteroskedasticity and autocorrelation-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs, except for the change in import penetration and the Uruguay Round dummy (equal to 1 starting in 1993). The estimated equations also include a full set of industry dummies, which are not included in the calculation of the R-squared and the F-statistic, as well as a constant. Each column consists of one regression, with the headings indicating the voting model. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71st percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60th and 86th percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Regressions are based on data for the country or countries whose industry characteristics lie at the relevant percentile.

Table 9: Testing Voting Rules—Decisive Country from Industry Characteristics, Weighted Specification

	Unanimity 1	Median	Logrolling 1	QMV	Logrolling 2	Unanimity	Sum
Employment Share	-0.083**	-0.100	-0.111	0.085	-0.049	-0.174***	-0.082
	(0.041)	(0.084)	(0.068)	(0.073)	(0.063)	(0.054)	(0.148)
# Firms	-0.175***	-0.215***	-0.176***	-0.075*	-0.156***	-0.168***	-0.201***
	(0.032)	(0.034)	(0.038)	(0.039)	(0.028)	(0.036)	(0.044)
Wage	0.382***	0.244**	0.112	0.377***	0.103**	0.101**	0.097
	(0.085)	(0.103)	(0.092)	(0.089)	(0.048)	(0.046)	(0.129)
Labor Cost Share	0.279***	0.556***	0.829***	0.677***	0.913***	0.414***	0.902***
	(0.074)	(0.148)	(0.170)	(0.156)	(0.143)	(0.088)	(0.216)
Intra-industry Ratio	-0.142	-0.173***	-0.110*	-0.149***	-0.009	-0.045*	-0.132*
	(0.103)	(0.063)	(0.057)	(0.045)	(0.034)	(0.024)	(0.074)
Import Penetration	0.070*	0.005	-0.108**	-0.058	-0.160***	-0.121***	-0.067
	(0.038)	(0.054)	(0.055)	(0.056)	(0.044)	(0.031)	(0.074)
Δ Import Penetration	-0.001*	0.002	0.003	0.001	0.003**	0.000	0.003
	(0.001)	(0.004)	(0.004)	(0.003)	(0.002)	(0.001)	(0.003)
Export Share	-0.108***	-0.330***	-0.273***	-0.283***	-0.199***	-0.173***	-0.186**
	(0.031)	(0.064)	(0.061)	(0.059)	(0.047)	(0.036)	(0.078)
Uruguay Round	-0.185***	-0.193***	-0.194***	-0.168***	-0.184***	-0.256***	-0.076**
	(0.037)	(0.032)	(0.032)	(0.032)	(0.031)	(0.030)	(0.037)
Obs	800	800	800	800	800	800	800
R-squared (within)	0.4046	0.4260	0.4037	0.4111	0.4384	0.4110	0.4536
Adjusted R-squared	0.3301	0.3541	0.3291	0.3374	0.3681	0.3372	0.3852
F-statistic	39.3013	38.7378	37.8075	38.6537	41.3277	42.9090	52.8040

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Heteroskedasticity and autocorrelation-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs, except for the change in import penetration and the Uruguay Round dummy (equal to 1 starting in 1993). The estimated equations also include a full set of industry dummies, which are not included in the calculation of the R-squared and the F-statistic, as well as a constant. Each column consists of one regression, with the headings indicating the voting model. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71st percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60th and 86th percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Regressions are based on data for the country or countries whose industry characteristics lie at the relevant percentile. All regressions are weighted by the number of votes each country has in the Council of Ministers.

Table 10: Testing Voting Rules—Decisive Country from Most Influential Characteristic

	Unanimity 1	Median	Logrolling 1	QMV	Logrolling 2	Unanimity	Sum
Employment Share	0.103***	-0.028	-0.014	-0.006	-0.016	0.001	-0.082
	(0.037)	(0.023)	(0.022)	(0.019)	(0.022)	(0.029)	(0.148)
# Firms	-0.194***	-0.014	-0.023**	-0.014	-0.024**	-0.082***	-0.201***
	(0.036)	(0.011)	(0.011)	(0.010)	(0.011)	(0.018)	(0.044)
Wage	0.139**	0.081***	0.092***	0.009	0.021	0.000	0.097
	(0.064)	(0.030)	(0.034)	(0.032)	(0.027)	(0.036)	(0.129)
Labor Cost Share	0.124	0.063	0.129**	0.034	0.122**	0.246***	0.902***
	(0.078)	(0.056)	(0.052)	(0.054)	(0.051)	(0.077)	(0.216)
Intra-industry Ratio	-0.037	-0.009	-0.014	0.022	0.045**	-0.036	-0.132*
	(0.034)	(0.029)	(0.026)	(0.022)	(0.020)	(0.027)	(0.074)
Import Penetration	-0.030	0.044*	-0.020	0.025	0.003	-0.128***	-0.067
	(0.042)	(0.025)	(0.024)	(0.024)	(0.024)	(0.033)	(0.074)
Δ Import Penetration	-0.002	-0.000	0.003**	-0.000	-0.000	-0.000	0.003
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.000)	(0.003)
Export Share	-0.078*	-0.449***	-0.366***	-0.370***	-0.290***	-0.039	-0.186**
	(0.042)	(0.058)	(0.051)	(0.048)	(0.042)	(0.026)	(0.078)
Uruguay Round	-0.146***	-0.244***	-0.256***	-0.268***	-0.289***	-0.272***	-0.076**
	(0.041)	(0.031)	(0.031)	(0.032)	(0.031)	(0.030)	(0.037)
Obs	800	800	800	800	800	800	800
R-squared (within)	0.3625	0.3702	0.3767	0.3365	0.3251	0.3586	0.4536
Adjusted R-squared	0.2827	0.2913	0.2987	0.2534	0.2406	0.2783	0.3852
F-statistic	38.8546	31.4550	35.6660	33.0594	33.5466	39.2276	52.8040

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Heteroskedasticity and autocorrelation-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs, except for the change in import penetration and the Uruguay Round dummy (equal to 1 starting in 1993). The estimated equations also include a full set of industry dummies, which are not included in the calculation of the R-squared and the F-statistic, as well as a constant. Each column consists of one regression, with the headings indicating the voting model. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71^{st} percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60^{th} and 86^{th} percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Regressions are based on data for the country whose most influential characteristic, lies at the relevant percentile.

Table 11: Testing Voting Rules—Decisive Country from Most Influential Characteristic, Weighted Specification

	Unanimity 1	Median	Logrolling 1	QMV	Logrolling 2	Unanimity	Sum
Employment Share	0.103***	0.025	-0.008	0.020	0.005	-0.027	-0.024
	(0.037)	(0.024)	(0.021)	(0.028)	(0.033)	(0.025)	(0.155)
# Firms	-0.194***	-0.034**	-0.037***	-0.023*	-0.022	-0.007	-0.126***
	(0.036)	(0.014)	(0.011)	(0.014)	(0.015)	(0.012)	(0.033)
Wage	0.139**	0.098**	0.079**	0.069*	0.127***	0.048	0.086
	(0.064)	(0.039)	(0.031)	(0.039)	(0.044)	(0.034)	(0.134)
Labor Cost Share	0.124	0.096	0.186***	0.030	1.085***	0.065	0.975***
	(0.078)	(0.059)	(0.058)	(0.064)	(0.151)	(0.057)	(0.215)
Intra-industry Ratio	-0.037	-0.049*	-0.017	-0.026	-0.058*	0.001	-0.157**
	(0.034)	(0.029)	(0.027)	(0.029)	(0.030)	(0.021)	(0.073)
Import Penetration	-0.030	-0.039	0.014	0.041	-0.053	-0.050*	-0.035
	(0.042)	(0.030)	(0.024)	(0.034)	(0.033)	(0.029)	(0.075)
Δ Import Penetration	-0.002	0.005**	0.001	-0.005**	0.001	-0.003	0.004
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.003)
Export Share	-0.078*	-0.367***	-0.382***	-0.394***	-0.037	-0.210***	-0.159*
	(0.042)	(0.058)	(0.057)	(0.059)	(0.031)	(0.041)	(0.086)
Uruguay Round	-0.146***	-0.279***	-0.268***	-0.274***	-0.298***	-0.334***	-0.121***
	(0.041)	(0.031)	(0.031)	(0.032)	(0.029)	(0.030)	(0.033)
Obs	800	800	800	800	800	800	800
R-squared (within)	0.3625	0.3563	0.3598	0.3413	0.3631	0.3094	0.4372
Adjusted R-squared	0.2827	0.2757	0.2796	0.2588	0.2834	0.2230	0.3667
F-statistic	38.8546	31.5153	34.8735	32.5000	32.6390	28.5930	45.8569

Note: Panel regressions were run for 80 industries over 10 years (every other year from 1987-2005). Heteroskedasticity and autocorrelation-consistent standard errors are in parenthesis. Estimates marked *** are significant at the 1-percent level; those marked ** are significant at the 5-percent level; and those marked * are significant at the 10-percent level. All variables are in logs, except for the change in import penetration and the Uruguay Round dummy (equal to 1 starting in 1993). The estimated equations also include a full set of industry dummies, which are not included in the calculation of the R-squared and the F-statistic, as well as a constant. Each column consists of one regression, with the headings indicating the voting model. Unanimity 1 refers to the model testing unanimity (in which the decisive national government is the one preferring the lowest tariff) under the assumption that the status quo is lower than proposals; median tests the median-voter model; QMV tests the qualified-majority voting requirement (equivalent to the 71st percentile); and logrolling 1 and logrolling 2 test possible logrolling outcomes (60th and 86th percentile, respectively). Unanimity 2 tests whether the pivotal country is the one preferring the highest tariff. The sum regression, in which industry characteristics are summed across country, is included as alternatives to the decisive national government framework. Regressions are based on data for the country whose most influential characteristic, lies at the relevant percentile. All regressions are weighted by the number of votes each country has in the Council of Ministers.